**Science Fifth Grade**

**The embedded inquiry and technology and engineering standards should be taught all year through the content standards.**

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| **Embedded Inquiry**  **GLE 0507.Inq.1** Explore different scientific phenomena by asking questions, making logical predictions, planning investigations, and recording data.  **GLE 0507.Inq.2** Select and use appropriate tools and simple equipment to conduct an investigation.  **GLE 0507.Inq.3** Organize data into appropriate tables, graphs, drawings, or diagrams.  **GLE 0507.Inq.4** Identify and interpret simple patterns of evidence to communicate the findings of multiple investigations.  **GLE 0507.Inq.5** Recognize that people may interpret the same results in different ways.  **GLE 0507.Inq.6** Compare the results of an investigation with what scientists already accept about this question. | |
| **Checks for Understanding** | **State Performance Indicators** |
| **✓0507.Inq.1** Identify specific investigations that could be used to answer a particular question and identify reasons for this choice.  **✓0507.Inq.2** Identify tools needed to investigate specific questions.  **✓0507.Inq.3** Maintain a science notebook that includes observations, data, diagrams, and explanations.  **✓0507.Inq.4** Analyze and communicate findings from multiple investigations of similar phenomena to reach a conclusion. | **SPI 0507.Inq.1** Select an investigation that could be used to answer a specific question. |
| **Embedded Technology & Engineering**  **GLE 0507.T/E.1** Describe how tools, technology, and inventions help to answer questions and solve problems.  **GLE 0507.T/E.2** Recognize that new tools, technology, and inventions are always being developed.  **GLE 0507.T/E.3** Identify appropriate materials, tools, and machines that can extend or enhance the ability to solve a specified problem.  **GLE 0507.T/E.4** Recognize the connection between scientific advances, new knowledge, and the availability of new tools and technologies.  **GLE 0507.T/E.5** Apply a creative design strategy to solve a particular problem generated by societal needs and wants. | |
| **✓0507.T/E.1** Explain how different inventions and technologies impact people and other living organisms.  **✓0507.T/E.2** Design a tool or a process that addresses an identified problem caused by human activity.  **✓0507.T/E.3** Determine criteria to evaluate the effectiveness of a solution to a specified problem.  **✓0507.T/E.4** Evaluate an invention that solves a problem and determine ways to improve the design. | **SPI 0507.T/E.1** Select a tool, technology, or invention that was used to solve a human problem.  **SPI 0507.T/E.2** Recognize the connection between a scientific advance and the development of a new tool or technology. |

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| **Unit 1**  **August 6, 2014 – October 3, 2014** | | | | |
| **The order of the standards may be changed within a unit if needed for development of STEM challenges.** | | | | |
| **The embedded inquiry and technology and engineering standards should be taught through the content standards.** | | | | |
| **Grade Level Expectation** | **Checks for Understanding** | | **State Performance Indicators** | **Teacher Resources** |
| **GLE 0507.1.1** Distinguish between the basic structures and functions of plant and animal cells. | **✓0507.1.1** Label drawings of plant and animals cells.  **✓0507.1.2** Compare and contrast the basic structures and functions of plant and animal cells. | | **SPI 0507.1.1** Identify the major parts of plant and animal cells such as, the nucleus, cell membrane, cell wall, and cytoplasm.  **SPI 0507.1.2** Compare and contrast basic structures and functions of plant and animal cells. | pgs.26 – 37  Journeys info text |
| **GLE 0507.3.1** Demonstrate how all living things rely on the process of photosynthesis to obtain energy. | **✓0507.3.1** Identify the cell structures that enable plants to conduct photosynthesis.  **✓0507.3.2** Design a graphic organizer that illustrates the difference between plants and animals in the movement of food energy through an ecosystem. | | **SPI 0507.3.1** Identify photosynthesis as the food manufacturing process in plants  **SPI 0507.3.2** Compare how plants and animals obtain energy. | pgs.52 - 63 |
| **GLE 0507.2.1** Investigate different nutritional relationships among organisms in an ecosystem. | **✓0507.2.1** Evaluate producer/consumer, predator/prey, and parasite/host relationships. | | **SPI 0507.2.1** Describe the different types of nutritional relationships that exist among organisms. | pgs.38 – 45  49 – 51 |
| **GLE 0507.2.2** Explain how organisms interact through symbiotic, commensal, and parasitic relationships. | **✓0507.2.2** Classify interspecific relationships within an ecosystem as mutualism, commensalism, or parasitism.  **✓0507.2.3** Create a simple model illustrating the interspecific relationships within an ecosystem. | | **SPI 0507.2.2** Distinguish among symbiotic, commensal, and parasitic relationships. | pgs.46 - 49 |
| **GLE 0507.2.3** Establish the connections between human activities and natural disasters and their impact on the environment. | **✓0507.2.4** Analyze basic information from a body of text to identify key issues or assumptions about the relationships among organisms in an ecosystem.  **✓0507.2.5** Create a poster to illustrate how human activities and natural disasters affect the environment. | | **SPI 0507.2.3** Use information about the impact of human actions or natural disasters on the environment to support a simple hypothesis, make a prediction, or draw a conclusion. | pgs.64 - 79 |
| **GLE 0507.5.1** Investigate physical characteristics associated with different groups of animals.  **GLE 0507.5.2** Analyze fossils to demonstrate the connection between organisms and environments that existed in the past and those that currently exist. | **✓0507.5.1** Classify animals according to their physical characteristics.  **✓0507.5.2** Design a model to illustrate how an animal’s physical characteristics enable it to survive in a particular environment.  **✓0507.5.3** Identify the processes associated with fossil formation.  **✓0507.5.4** Use fossil evidence to describe an environment from the past.  **✓0507.5.5** Use fossils to match a previously existing organism with onethat exists today. | | **SPI 0507.5.1** Identify physical and behavioral adaptations that enable animals such as, amphibians, reptiles, birds, fish, and mammals to survive in a particular environment.  **SPI 0507.5.2** Explain how fossils provide information about the past. | pgs.108 – 121  pgs.122-135 |
| **Unit 2**  **October 6, 2014 – January 23, 2015** | | | | |
| **Grade Level Expectation** | **Checks for Understanding** | | **State Performance Indicators** | **Teacher Resources** |
| **GLE 0507.4.1** Describe how genetic information is passed from parents to offspring during reproduction. | **✓0507.4.1** Explain how genetic information is transmitted from parents to offspring. | | **SPI 0507.4.1** Recognize that information is passed from parent to offspring during reproduction. | pgs.98 – 101 |
| **GLE 0507.4.2** Recognize that some characteristics are inherited while others result from interactions with the environment. | **✓0507.4.2** Create a chart that compares hereditary and environmental traits.  **✓0507.4.3** Distinguish between a scar and a birthmark in terms of their origins. | | **SPI 0507.4.2** Distinguish between inherited traits and those that can be attributed to the environment. | pgs.102 – 107  Journeys info text |
| **GLE 0507.10.2** Conduct experiments on the transfer of heat energy through conduction, convection, and radiation. | **✓0507.10.3** Describe the differences among conduction, convection, and radiation.  **✓0507.10.4**  Create a poster to illustrate the major forms of energy.  **✓0507.10.5**  Demonstrate different ways that energy can be transferred form one object to another. | | **SPI 0507.10.2** Use data from an investigation to determine the method by which heat energy is transferred from one object or material to another. | pgs.346 – 357 |
| **GLE 0507.8.1** Analyze and predict how major landforms and bodies of water affect atmospheric conditions. | **✓0507.8.1** Compare the climates of coastal and inland areas at similar latitudes to demonstrate the ocean’s impact on weather and climate.  **✓0507.8.2** Use land maps to demonstrate how mountain ranges affect weather and climate.  **✓0507.8.3** Use weather maps of the United States to graph temperature and precipitation for inland and coastal regions.  **✓0507.8.4** Use local environmental information to analyze how weather and climate are affected by landforms and bodies of water. | | **SPI 0507.8.1** Describe the effects of the oceans on weather and climate.  **SPI 0507.8.2** Explain how mountains affect weather and climate. | pgs.230 - 241 |
| **GLE 0507.9.1** Observe and measure the simple chemical properties of common substances. | **✓0507.9.1** Compare the simple chemical properties of common substances. | | **SPI 0507.9.1** Distinguish between physical and chemical properties. | pgs.292 – 298,  300 – 301 |
| **GLE 0507.9.2** Design and conduct an experiment to demonstrate how various types of matter freeze, melt, or evaporate. | **✓0507.9.2** Investigate how different types of materials freeze, melt, evaporate, or dissipate. | | **SPI 0507.9.2** Describe the differences among freezing, melting, and evaporation. | pgs.270 – 275  278-281 |
| **GLE 0507.9.3** Investigate factors that affect the rate at which various materials freeze, melt, or evaporate. | **✓0507.9.3** Use data from a simple investigation to determine how temperature change affects the rate of evaporation and condensation. | | **SPI 0507.9.3** Describe factors that influence the rate at which different types of material freeze, melt, or evaporate. | pgs.282 – 287  289 - 291 |
| **GLE 0507.7.1** Compare geologic events responsible for the earth’s major geological features. | **✓0507.7.1** Create a model to illustrate geologic events responsible for changes in the earth’s crust.  **✓0507.7.2** Prepare a chart to compare how volcanoes, earthquakes, faulting, and plate movements affect the earth’s surface features. | | **SPI 0507.7.1** Describe internal forces such as volcanoes, earthquakes, faulting, and plate movements that are responsible for the earth’s major geological features such as mountains, valleys, etc. | 194 - 229 |
| **Unit 3**  **January 26, 2015 – April 7, 2015** | | | | |
| **Grade Level Expectation** | **Checks for Understanding** | **State Performance Indicators** | | **Teacher Resources** |
| **GLE 0507.12.1** Recognize that the earth attracts objects without directly touching them. | **✓0507.12.1** Explain and give examples of how forces act at a distance. | **SPI 0507.12.1** Recognize that the earth attracts objects without touching them. | | pgs.322 - 325 |
| **GLE 0507.12.2** Investigate how the shape of an object influences the way that it falls toward the earth. | **✓0507.12.2** Demonstrate how the shape of an object affects how it falls toward the earth. | **SPI 0507.12.2** Identify the force that causes objects to fall to the earth. | | pgs.323,  326 -327 |
| **GLE 0507.12.3** Provide examples of how forces can act at a distance. | **✓0507.12.3** Design and explain an investigation exploring the earth’s pull on objects. | **SPI 0507.12.3** Use data to determine how shape affects the rate at which a material falls to earth. | | pgs.324 – 325 |
| **GLE 0507.11.1** Design an investigation, collect data and draw conclusions about the relationship among mass, force, and distance traveled. | **✓0507.11.1** Predict how the amount of mass affects the distance traveled given the same amount of applied force.  **✓0507.11.2** Prepare statements about the relationship among mass, applied force, and distance traveled.  **✓0507.11.3** Design and conduct experiments using a simple experimental design to demonstrate the relationship among mass, force, and distance traveled. | **SPI 0507.11.1** Explain the relationship that exist among mass, force, and distance traveled  . | | pgs.328 – 331  Journeys info text |
| **GLE 0507.10.1** Design an experiment to illustrate the difference between potential and kinetic energy. | **✓0507.10.1**  Design and conduct an investigation to demonstrate the difference between potential and kinetic energy.  **✓0507.10.2** Create a graphic organizer that illustrates different types of potential and kinetic energy. | **SPI 0507.10.1** Differentiate between potential and kinetic energy. | | pgs.336 - 345 |
| **GLE 0507.6.1** Compare planets based on their known characteristics. | **✓0507.6.1** Develop a chart that communicates the major characteristics of each planet. | **SPI 0507.6.1** Distinguish among the planets according to their known characteristics such as appearance, location, composition, and apparent motion. | | pgs.152 – 171 |
| **GLE 0507.6.2** Recognize that charts can be used to locate and identify star patterns. | **✓0507.6.2** Use images of the night sky to identify different seasonal star patterns.  **✓0507.6.3** Research a star pattern using a chart. | **SPI 0507.6.2** Select information from a complex data representation to draw conclusions about the planets.  **SPI 0507.6.3** Identify methods and tools for identifying star patterns. | | pgs.172 - 185 |
| **Unit 4: TCAP Review and Testing**  **April 8 – May 1** | | | | |
| **Unit 5: After TCAP Units**  **After TCAP, teachers may choose to revisit STEM challenges or choose to teach units found on the server for the time remaining in the school year.** | | | | |